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Co-treatment with PCBs potentiates Cd nephrotoxicity

The nephrotoxic effect of cadmium (Cd) and polychlorinated biphenyls (PCBs), as widely spread toxic environmental pollutants that enter food chain and pose risk to human health, was investigated and compared with Cd—agent of well-known nephrotoxicity. Six groups of rats were receiving 0.3, 0.6, 1.25, 2.5, 5 or 10 mg Cd/kg b.w./day as aqueous solutions of CdCl₂, while nine groups were treated with different dose combinations of Cd and PCBs, as Aroclor 1254 dissolved in corn oil, (1.25, 2.5 or 5 mg Cd/kg b.w./day with 2,4 or 8 mg PCBs/kg b.w./day). Two groups receiving only water or corn oil served as controls. Treatment of all animals was performed by oral gavage and lasted for 28 days. Cadmium levels were determined in blood and kidneys. Urea and creatinine in serum and relative kidney weight were determined. Blood and kidney Cd levels in groups treated with Cd only as well as in co-treated groups were significantly higher if compared with controls, although PCBs did not exert significant effect on Cd content. Urea levels were significantly higher in rats treated with all combinations of Cd and PCBs if compared with groups treated with Cd only, while only highest dose of Cd combined with different doses of PCBs resulted in higher creatinine levels and relative kidney weight. Synergistic interactions between Cd and PCBs have been proven for urea levels indicating more profound nephrotoxic potency of this mixture when compared to Cd induced effect on kidneys.

Biography

Vesna Matovic has completed her PhD at Faculty of Pharmacy, University of Belgrade, Serbia. She is Head of Department of Toxicology "Akademik Danilo Soldatovic" and President of Serbian Society of Toxicology. She has published more than 250 papers in reputed journals and has been serving as an Editorial Board Member and reviewer.

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